

A second speculation concerns the nature of the shoreline when the water level was higher and rainfall was greater than at present. One would expect the littoral area to be quite different from the barren area much of it now is. Habitat appropriate for the cranes may well have existed as far south as the present foot of the lake, presumably about the Saguata Swamp to the south, and possibly beyond this. Assuming that the two species of cranes had at one time a contiguous or overlapping range in this area, the present period of decreased rainfall and increasing aridity may have been a determining factor in the present hiatus in range.

What of the future? It seems evident that if the rapid drop in Rudolf's level continues, much of this shallow lake will dry up or, in the process, be reduced to seasonal swampy areas flooded by the Omo River. Neumann (*loc. cit.*: 339), one might add, noted that with north winds the sudd-like aquatic growth surrounding the north end of the lake was pushed southward into the open water. Dropping lake levels attended by constant silting from the Omo favour the establishment of this growth along shallow shorelines. Even now, the delta of the Omo and the surrounding marshes are spreading rapidly southward into the lake. Thus, favourable habitat for *B. pavonina* may, despite increasing aridity, gradually extend south to a point considerably closer to the range of *B. regulorum*.

During the preparation of a manuscript on the avifauna of the Lake Rudolf area, I have become increasingly impressed with the opportunity which the interpreted history of the Rift Valley lakes affords our speculations concerning the fluctuations in the ecology and thus in the history of the populations of such birds as *B. pavonina*.

References:

- Höhnel, L. R. von. *Discovery by Count Teleki of Lakes Rudolf and Stephanie*, vol. 2, 1894.
 Jackson, F. J. *The Birds of Kenya Colony and the Uganda Protectorate*, vol. 1, 1938.
 Neumann, A. H. *Elephant-hunting in East Equatorial Africa*, 1898.
 Walkinshaw, L. H. The African Crowned Cranes. *Wilson Bull.*, 76: 355-377.
 Worthington, E. B. Scientific results of the Cambridge Expedition to the East African Lakes, 1930-1. General introduction and station list. *Journ. Linn. Soc. Lond.*, 38: 99-119.

On Moore's Olive Bulbul (*Pycnonotus simplex* subsp.)

by A. HOOGERWERF

Received 24th February, 1964

The only series of freshly collected material which I studied originates from Java's most western peninsula Ujung Kulon; in all other territories we visited in recent years (Princes Island, other islands in the Sunda Strait and the Karimundjawa, Bawean and Kangean Islands) the species was not found. In Ujung Kulon this bulbul may not be called rare though it seems to prefer the south coast, bordering the Indian Ocean which may be the case in the other parts of Java as pointed out earlier (Hoogerwerf⁶).

The series from this area consists of 15 specimens among which are nine males. Though in plumage both sexes are said to be alike the five adult females before me have more olive in the brown of the upper parts than any of the nine males, which makes both sexes at once distinguish-

able. Among these females there are four with slightly developed gonads; the remaining one had the ovarium well differentiated with ova of 1-3 mm., but the plumage is exactly similar. The same holds good for the males among which are two having the gonads very small against six with testicles of 2-5 and one of 8-10 mm. The rather small individual differences in the colour of the male plumage seem to have nothing to do with the development of the reproductive organs.

When comparing these fresh skins with old material from Java it is evident that, also in this plain-coloured bulbul, important post-mortem changes in certain parts of the plumage take place: old skins average in being much lighter owing to the lack of olive in the brown of the upper parts. Therefore material of both categories can be separated at once.

The old specimens belonging to the nominate race⁽⁷⁾ and those of *perplexus*⁽¹⁵⁾ do not differ much from our fresh material of *prillwitzii* so far as it concerns the upper parts. But they can be distinguished without difficulty from birds of the latter race collected at about the same time, making acceptable Hartert's⁵ diagnosis of *prillwitzii*. The only difference with old material of *prillwitzii* when compared with *simplex* and *perplexus* consists of the less vivid colour of the upper surface caused by the lack of any trace of olive in the brown. Between old skins of *simplex* and those of *perplexus* there is little constant difference, but a bird belonging to *simplex* from Tapanuli (Sumatra) is much darker than any other fresh or old skin before me and all four specimens coming from the Riouw Archipelago classified as *simplex* (Riouw is within the range of *simplex* according to Peters⁷) average in being lighter than any Sumatran skin.

On the under parts old Javan material averages in being duller and much yellower than fresh skins. It is with a view to this fact that Hartert's diagnosis seems to be not quite correct on this point, for it may be suggested that fresh *prillwitzii* skins actually do not average in having so much more yellow below than *simplex* and *perplexus*, but they may be somewhat paler. As a consequence of this, old material of both other subspecies differs less obviously from fresh *prillwitzii* than is the case between fresh and old material of this latter form. But because fresh *simplex* and *perplexus* may be darker below than old material it seems justified to suppose that *prillwitzii* has much lighter under parts than birds belonging to both other subspecies. Among the four skins of *simplex* from the Riouw Archipelago there are two which are lighter than any other skin of the 45 specimens belonging to all three subspecies discussed here. We found a rather similar situation in *Pycnonotus plumosus* coming from those islands, which makes it justified to study more thoroughly both these species living in the Riouw Archipelago, on the basis of larger series of fresh material than was previously possible.

In fresh as well as in old skins of *prillwitzii* the under tail-coverts average darker than in old *simplex* or *perplexus* because they are distinctly more olivaceous in *prillwitzii*; on this point there is not much difference between old and fresh material of the races discussed in this paper, so that this colour difference is likely to be present in all three, as pointed out by Hartert.

From the measurements found by me it seems evident that *prillwitzii*

averages only slightly longer in the bill than in the nominate race and also the width of the bill does not differ so much. *Prillwitz* averages in being distinctly smaller than *simplex*, in the wing as well as in the tail, in my opinion important enough to justify separation, even if there were no other differences; *perplexus* seems to agree in this respect with *prillwitz*. On account of the fact that *perplexus* and *simplex* are similar in plumage, thus differing from *prillwitz*, it is evident that *prillwitz* and *perplexus* cannot be identical, even if we do not take into account the colour of the irides which might have subspecific significance in the present species.

To the difference in colour of the irides between *simplex* and *perplexus*, as pointed out by Chasen and Boden Kloss³ viz white in *simplex* against red in *perplexus*, which may perhaps prove to be a rather doubtful characteristic, can be added a difference in wing and tail-length as is shown by the figures given below of the material measured by me. But it may not be excluded that my figures are somewhat exaggerated as is evident from the measurements compiled from literature, showing a wing length in the males of *perplexus* of 76–87.5 and 75–81.5 mm. in the females. This should mean that also so far as it concerns the measurements the difference between both these races is far from being spectacular.

Though Hartert did not pay attention to the colour of the iris Chasen and Boden Kloss called this orange or orange yellow in *prillwitz*, but in my experience there is some individual variation in this respect because we noted as eye-colour in freshly killed Javan birds: light red, orange red, redbrown and light ochreous brown, which apparently does not differ much from *perplexus*.

According to de Schauensee⁸ the iris of the birds collected by Dr. W. L. Abbott in the Malay Peninsula (*P.s. simplex*) are recorded as "white, yellowish white or gray-white" and in one bird "pale yellow". In *prillwitz* of Java the iris can be white (though *not* established by me) or orange, according to the same author while in *perplexus* it should be, according to Chasen, "red", "redbrown" and "yellowish white" in sub-adult birds. For some birds examined by de Schauensee himself he gives as the colour of the irides: Sumatra ♂, white; Nias 2♀, white; Batu Islands, white; Bangka ♂ (sub-adult), orange and Java 3♂♀, orange. This indeed seems to be an affirmation of the view that *simplex* has a white or whitish iris with the exception of Bangka birds, considered by Deignan⁴ to belong to a different race.

Notwithstanding the indications mentioned above pointing to the validity of a difference in eye-colour as a subspecific character, I personally am of the opinion that it is very dangerous to regard colour differences in irides as racial characters, certainly in a bird of which so little is known, as in this case.

I did not see any material from the Anamba and North Natuna Islands, known as *halizonus*, nor of *oblitus* known from Bangka, Billiton and parts of Borneo and Natuna Islands, so that I have no opinion about the validity of these races. The subspecies *oblitus* was described by Deignan in 1954⁴ from the South Natunas and Peters' checklist includes Bangka into the range of this subspecies, though de Schauensee⁸ mentions *perplexus* as the race living on this island. The subspecies *chloeodis* is considered as a

synonym of *simplex* and *axanthizus* is synonymized with *halizonus* (see Chasen¹ and Peters⁷). When compared with birds of the nominate race from Sumatra the diagnosis of *halizonus* mentions the larger size, darker lower parts, and paler, more greenish upper surface. Iris white or grey. Representatives of *oblitus* should differ from *halizonus* by having the iris red instead of white and from *perplexus* by longer and heavier bill, and probably (!) also by other measurements.

Measurements (in mm.)

♂♂ Wing; *simplex*: 79, 80, 82, 83, 84, 84, 85; *perplexus*: 74, 75, 75, 75, 80, 80, 82, 82, 83, 85; *prillwitzi* (Java): 77, 80, 82; *prillwitzi* (Udjung Kulon): 75, 77, 77, 78, 80, 80, 81, 81, 82.

Tail; *simplex*: 69, 70, 71, 72, 73, 74, 77; *perplexus*: 64, 66, 66, 67, 67, 67, 69, 72, 72, 75; *prillwitzi* (Java): 69, 71, 71; *prillwitzi* (Udjung Kulon): 65, 66, 66, 67, 68, 68, 69, 70.

Culmen; *simplex*: 11.8, 12.5, 12.5, 12.5, 12.8, 13.8, 14.5; *perplexus*: 10.2, 12.2, 12.2, 12.5, 12.6, 12.6, 12.7, 12.9, 13.2, 13.3; *prillwitzi* (Java): 12.1, 13.2, 13.5; *prillwitzi* (Udjung Kulon): 11.5, 12.4, 12.5, 13.0, 13.2, 13.2, 13.3, 14.9.

Max., min. and average measurements:

	<i>simplex</i>	<i>perplexus</i>	<i>prillwitzi</i> Java	<i>prillwitzi</i> Udjung Kulon
Wing	79-85	74-85	77-82	75-82
	82.43	79.10	79.67	79
Tail:	69-77	64-75	69-71	65-70
	72.29	68.50	70.33	67.38
Culmen:	11.8-14.5	10.2-13.3	12.1-13.5	11.5-14.9
	12.91	12.44	12.93	13

♀♀ Wing; *simplex*: none; *perplexus*: 76, 78, 78, 81, 82; *prillwitzi* (Java): 77, 78, 78, 78, 78; *prillwitzi* (Udjung Kulon): 73, 75, 77, 77, 80.

Tail; *perplexus*: 64, 66, 68, 69, 70; *prillwitzi* (Java): 66, 68, 68, 70; *prillwitzi* (Udjung Kulon): 63, 64, 64, 65, 68.

Culmen; *perplexus*: 12.2, 12.5, 12.5, 13; *prillwitzi* (Java): 11.1, 12.2, 12.4, 12.9, 13; *prillwitzi* (Udjung Kulon): 11.2, 12.2, 13, 13.1, 13.6.

Max., min. and average measurements:

	<i>perplexus</i>	<i>prillwitzi</i> Java	<i>prillwitzi</i> Udjung Kulon
Wing:	76-82	77-78	73-80
	79	77.80	76.40
Tail:	64-70	66-70	63-68
	67.40	68	64.80
Culmen:	12.2-13	11.1-13	11.2-13.6
	12.55	12.32	12.62

Some measurements compiled from literature:

de Schauensee⁸; *simplex*:

♂♂ *Wing*: 78 (Peninsular Siam); 81 (Sumatra)

♀♀ *Wing*: 74, 74; *Tail*: 63, 64 (Nias Island)

Wing: 84; *Tail*: 84 (Batu Islands)*

prillwitzi:

♂♂ *Wing*: 78, 78; *Tail*: 63, 66 (Java)

♀♀ *Wing*: 76, 80.5; *Tail*: 62, 63 (Java)

Voous⁹; *perplexus*:

♂♂ *Wing*: 80, 80, 81.5, 82, 87.5 (Borneo)

♀♀ *Wing*: 77, 79, 81.5 (Borneo)

Chasen²; *perplexus*:

♂♂ *Wing*: 76, 77, 82, 83, 85 (Billiton Island)

♀♀ *Wing*: 75, 75, 79 (Billiton Island)

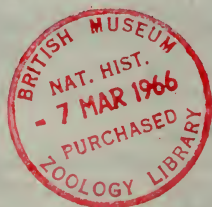
Chasen & Boden Kloss³; *perplexus*:

♂♂ *Wing*: 82, 84, 85; *Tail*: 73, 73, 78 (North Borneo)

♀♀ *Wing*: 75, 78, 79; *Tail*: 70, 73, 75 (North Borneo)

References:

- ¹ Chasen F. N. A Handlist of Malaysian Birds; *Bulletin of the Raffles Museum*, Singapore, 11, 1935, p. 201.
- ² —Birds of Billiton Island; *Treubia*, 16, 1937, p. 226.
- ³ Chasen F. N. and Boden Kloss, C. Some new Birds from North Borneo; *Journal für Ornithologie*, 1929, Band 2, p. 116.
- ⁴ Deignan, H. G. Five new races of bulbuls (Pycnonotidae) from southern Asia; *Journ. Wash. Acad. of Sciences*, 44, 4, 1954, p. 123-125.
- ⁵ Hartert, E. On Birds from Pahang, Eastern Malay Peninsula; *Novitates Zoologica*, 9, 1902, p. 56.
- ⁶ Hoogerwerf, A. Contribution to the knowledge of the distribution of Birds on the Island of Java; *Treubia*, 19, 1948, p. 92.
- ⁷ Peters, J. *Checklist of Birds of the World*, Vol. IX, 1960, p. 249.
- ⁸ Schauensee, R. M. de. The Birds of the Island of Bangka, Indonesia; *Proceedings Academy Natural Sciences of Philadelphia*, 110, 1958, p. 289-290.
- ⁹ Voous, K. H. Birds collected by Carl Lumholtz in Eastern and Central Borneo; Contribution no. 71, Zoölogical Museum, University of Oslo, 1961, p. 160.



* 84 mm. for the tail is apparently a mistake.